

1067-22-172

**William M. McGovern\*** ([mcgovern@math.washington.edu](mailto:mcgovern@math.washington.edu)), Department of Mathematics, Box 354350, University of Washington, Seattle, WA 98195. *Rational smoothness of  $K$ -orbit closures in flag varieties.*

Let  $K$  be a symmetric subgroup of a complex reductive group  $G$ . I will survey the known results on the characterization of the  $K$ -orbits in the flag variety  $G/B$  with rationally smooth closure, mostly via the combinatorial notion of pattern avoidance. All of the classical cases but one have been settled, but the last one presents serious technical difficulties. (Received July 28, 2010)